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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,536	01/30/2002	William S. Burton	10010982-1	8880

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EXAMINER

CHAMBLISS, ALONZO

ART UNIT PAPER NUMBER

2827

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/060,536

Applicant(s)

WILLIAM S. BURTON

Examiner

Alonzo Chambliss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 10-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-9 and 17-21 in Paper No. 3 is acknowledged.

Claims 10-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 501 and 502. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the stub traces comprises reducing width of the stub trace relative to a width of a signal trace must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: " APPARATUS FOR ROUTING ELECTRICAL SIGNALS ".

Claim Objections

6. Claim 2 is objected to because of the following informalities: the word " insulating " is misspelled on line 3. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-9 and 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. In claim 1, the phrase "said stub trace on said first side" is vague and indefinite since it is not clear from the claim how the stub trace is on the first side when the signal trace is on the first side and the stub trace is in the via.
10. In claim 4, the phrase "said electrically conductive layer is absent is sufficiently large to increase an impedance of the stub traces" is vague and indefinite since it is not clear from the claim absent increases the impedance of the stub traces.
11. In claims 5 and 6, the phrase "a width of said stub trace is reduced to a minimum width required for an electroplating process" is vague and indefinite since it is not clear from the claim what the minimum width is.
12. In claim 7, the phrase "a plurality of electrical contacts necessary for an electroplating process" is vague and indefinite since it is not clear from the claim how the electrical contacts are necessary for an electroplating process when the process creates the electrical contacts.
13. In claim 17, the phrase "a means for increasing an impedance of said stub trace" is vague and indefinite since it is not clear from the claim how the means increase the impedance of the stub trace.
14. In claim 18, the phrase "said means for increasing said impedance of said stub trace attenuates a reflected signal" is vague and indefinite since it is not clear from the

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claim how the means increases the impedance of the stub trace to attenuate a reflected signal.

15. Claim 21 recites the limitation " a signal trace " in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

17. Claims 1-3, 8, and 9, insofar as definite, are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Barrow (U.S. 6,521,845).

With respect to Claim 1, Barrow teaches a layered structure 14 comprising at least one signal trace 32 disposed on a first side of an electrically insulating layer. A via 50 electrically connected to the trace 32, wherein the via 50 having a conductive stub trace 56 electrically connected thereto. A generally planar electrically conductive layer 58 disposed on a second side of the electrically insulating layer, wherein the stub trace 56 on the second side defines an area on the second side where the electrically conductive layer 58 is absent (see Fig. 1).

With respect to Claim 2, Barrow teaches wherein the electrically insulating layer comprises a first electrically insulating layer and the generally planar electrically conductive layer comprises a first electrically conductive layer 58 and the layered structure 14 further comprises a second electrically insulating layer 36 disposed on a side of the signal trace 32 opposite the first electrically insulating layer and a second generally planar electrically conductive layer 58 is disposed on the second electrically insulating layer on a side opposite the signal trace 32, wherein the stub trace 50 also defines an area where the second electrically conductive layer 58 is absent (see Fig. 1).

With respect to Claim 3, Barrow teaches a plurality of the vias 50 and a plurality of the stub traces 56, wherein all of the stub traces 56 define a plurality of the areas on the second side where the electrically conductive layer 58 is absent (see Fig. 1 which is cut out portion of a larger substrate).

With respect to Claims 8 and 9, Barrow teaches the layered structure is an integrated circuit package or printed circuit board (see Fig. 1)

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 17, 19, and 20, insofar as definite are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrow (U.S. 6,521,845).

With respect to Claim 17, Barrow discloses a layered structure comprising at least one signal trace 32 disposed on a first side of an electrically insulating layer. A via 50 electrically connected to the trace 32, wherein the via 50 having a conductive stub trace 56 electrically connected thereto. A generally planar electrically conductive layer 58 disposed on a second side of the electrically insulating layer (see Fig. 1). Barrow does not explicitly disclose a means for increasing an impedance of the stub trace. However, one skilled in the art at the time of the invention would readily recognize increasing an impedance of the stub trace, since the direct via paths and separated Vdd and Vss pads reduce the inductance of the package while the structure of the package reduces the thermal impedance through the substrate. Therefore, for it would have been obvious to one skilled in the art at the time of the invention to increase the impedance of the stub trace of Barrow since the direct via paths and separated Vdd and Vss pads reduce the inductance of the package while the structure of the package reduces the thermal impedance through the substrate.

With respect to Claim 19, Barrow discloses wherein the mean for increasing the impedance of the stub traces comprises creating a gap 60 in the electrically conductive layer 58 closest to the stub trace 56 (see Fig. 1).

With respect to Claim 20, Barrow discloses wherein the means for increasing the impedance of the stub traces 56 comprises creating a insulating perimetrical portion of the electrically conductive layer 58 having one electrical access lines from an edge of the apparatus to the electrically conductive layer (see Fig. 1). Fig. 1 is a cut out portion

of the large substrate where the exterior does not have conductive material since there is no electrical connection to solder bumps at the exterior.

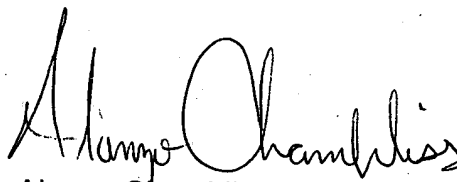
The prior art made of record and not relied upon is cited primarily to show the product and device of the instant invention.

Conclusion

19. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (703) 306-9143. The fax phone number for this Group is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956

AC/May 16, 2004


Alonzo Chambliss
Primary Patent Examiner
Art Unit 2827